## WILDLIFE HABITAT 11-N

This 12.5 mile strip begins a quarter mile downstream from mile 44 and extends upstream to mile 56.5 on the north bank of Lower Monumental Reservoir. Generally the area consists of steep bluffs interspersed with gentle slopes, bays, and the mouths of tributary canyons.

The gentle slopes with good soil depth are not subject to appreciable erosion. The steep slopes are mostly rocky and have very little soil.

Cheatgrass and rabbitbrush dominate the gentle slopes with good soils; occasionally there are isolated spots dominated by bluebunch wheatgrass and bluegrass indicating climax communities. Jim Hill mustard, canyon heather, vetch lupine, fleabane, phlox, and goldenrod occur commonly in various parts of the area.

Some of the largest concentrations of geese that occur on the Lower Snake River Project winter on the reservoir bordering this area. The combination of protective cliffs, gentle slopes for loafing and obtaining emergency grazing during inclement weather, and extensive wheat fields south of the canyon appear ideal for the requisites of wintering geese. Also, green strips of grass that occur near Magallon and Ayer on the south edge of the reservoir provide supplemental feeding sites for geese. Inaccessibility of this area by land makes it particularly valuable as a resting and escape area for such game animals as Canada geese, deer,

chukars, Hungarian partridges, and pheasants. This area also serves for nesting of numerous nongame animals including the threatened prairie falcon and the sparrow hawk which is on the National Audubon Society's Blue List.

MANAGEMENT, WILDLIFE HABITAT 11-N

Management aim: Protect the area in its present status for existing values and add habitat for increased wildlife use.

Discussion: Many upland game animals, nongame animals, and deer that use this 12.5 mile strip of land also depend on the slopes and canyons beyond the project boundary for some of their life requirements. For example, raptors (including the threatened prairie falcon) and some nongame birds (including cliff swallows) nest on cliffs beyond the project boundary but hunt for prey on the project area. Animals with an extensive cruising radius like deer, require particularly large ranges to fulfill their life requirements. In other words, a large tract of land that offers alternative combinations of food, cover, and other life requisities will support higher animal densities and more animal diversity than several small tracts of land totalling the same acreage.

Management recommendations: 1) From mile 50 downstream for two and one-half miles, establish an area 11,700 feet by 400 feet under scheme two to run adjacent to the project boundary fence. Wherever a ravine interfered with the path of the watering device, a culvert or some similar crossing could be installed to facilitate

the irrigation operation. 2) The steep ravine sides and bottoms should either be left natural or in brushy cover. Such species as black hawthorne, Nanking cherry, chokecherry, serviceberry, wild rose, snowberry, and Russian olive could be started. 3) The ridge tops and flats could support food patches and other brushy cover. 4) A portable power source would be used for the irrigation pump. 5) Install a total of three concrete Unifloats, each six feet wide by 20 feet long; and one in each bay at miles 45.5, 47.5 and 55 respectively. These structures should be installed only after the field has been developed and is providing grazing opportunities for young geese. 6) The livestock watering easements should be renegotiated and relocated to the eastern and western ends of the wildlife area. 7) A strip of shoreline should be planted with trees and shrubs, similar to scheme 4a, at the east end of the area. Portable power and pump equipment can be used until the shoreline planting becomes well established.

The area would be fenced along the project boundary.

## WILDLIFE HABITAT 12-S

This area located between mile 56 and mile 58 on the south side of Lower Monumental Reservoir, consists of about 300 acres of land on a low bench immediately below the Joso railroad bridge at Lyons Ferry. The land is sloping and undulating, rising to 110 feet above the operating pool level near the center of the area. The sandy alluvial soil of medium depth overlays deposits of gravel and sand.

Vegetation density is moderate and characterized by cheatgrass, bluebunch wheatgrass, and rabbitbrush.

Highest potential of the area for wildlife use could be realized by the development of a feeding site for the wintering and breeding geese on the opposite side of the reservoir at Wildlife Habitat 11-N, and for upland game (primarily pheasants).

A double railroad track is near the south project boundary, and there is an old borrow pit near and inside the project boundary at the west end of the area.

## MANAGEMENT, WILDLIFE HABITAT 12-S

Management aim: To produce food for Canada geese and food and cover for upland game birds.

Discussion: Habitat conditions beyond the project boundary on the south side of the reservoir presently are limited to a relatively low carrying capacity for upland game birds. Although a few upland game birds live there, lack of adequate brushy cover for protection inhibits an appreciable increase in their populations.

Large concentrations of geese wintering in this vicinity would benefit from food made available on this area. Availability of food near their resting sites would increase survival and reduce mortalities associated with extensive movements between resting sites and distant feeding grounds. Food patches would increase brood rearing potential for geese nesting on the opposite side of the reservoir. An increase in brushy cover would also offer a better habitat for upland game and nongame birds.

Management recommendations: 1) Following scheme two, an area 7,800 feet by 400 feet in the shape of a dog's leg should be established on this site. Local electric power for the irrigation pump is available.

## WILDLIFE HABITAT 13-S

The lower two miles of the Tucannon River and the bordering project lands comprise this habitat. A small island about 500 feet in length, occurring approximately 0.2 miles upstream from the reservoir, is also part of the habitat.

The island vegetation consists of a bluebunch wheatgrass-bluegrass plant community. About a quarter mile upstream from the island and opposite the highway, a cattail-sedge plant community approximately three-eight mile long extends around the first bend. Immediately upstream from this community a second community of poplar-willow-maple trees with associated shrubs extends to the upper end of the project lands. The shrubs are primarily alder, elderberry, currant, and red-osier dogwood. Both of these communities are on low lying alluvial soils which are subirrigated. As the land begins to rise beside these two communities there is a third plant community of bluebunch wheatgrass-bluegrass-cheatgrass. The land continues to rise, culminating in rocky slopes and basalt buttes.

Canada geese use the island as a nesting site, and in winter both geese and ducks use the island for sanctuary and resting. The large cattail-sedge community is used by geese and ducks for nesting and brood rearing. This community also supports numerous species of nongame animals including great blue herons and rails. The tree-shrub community supports a high diversity of game, nongame and fur bearing species. Pheasants, California quail, ducks, cottontail rabbits and occasionally white-tailed deer occupy this community on

a year around basis. Raccoon, mink, muskrats, skunks, weasels, and badgers also live in this community. The bluebunch wheatgrass-bluegrass-cheatgrass community is utilized by waterfowl as a feeding area. All three of these communities provide small rodents that raptors use for food. Marsh hawks, sparrow hawks, (both on the Audubon Society's Blue List), and red-tailed hawks nest in the tree-shrub community, and prairie falcons (threatened species) nest on the rocky bluffs.

A highway, railroad, and a gravel bar that serves for boat launching exist at the west edge of the habitat and proceed up the Tucannon River.

MANAGEMENT, WILDLIFE HABITAT 13-S, TUCANNON RIVER

Management aim; Protect the area against invasion and disturbance by human beings and domestic livestock.

Discussion: Advanced or near climax riparian vegetation on practically all of the area suggests that enhancement attempts would not necessarily improve quality of the habitat which presently is very good. If left alone and protected from disturbance, the riparian vegetation will in a short time become final or climax and remain in status. The only possible exception would occur if high or flood waters coming down the Tucannon River could cause enough disturbance to set back some of the river bottom communities to an earlier successional stage. Such disturbance would not necessarily be detrimental to wildlife habitats. For example, annual plants thrive where silt

is deposited from flood waters. Many of these annuals, like barnyard grass and smartweed, provide some of our most valuable waterfowl and upland game foods. However, if flood waters are forceful enough to destroy trees and shrubs more harm than good would result to wildlife habitat. Both of these conditions would occur regardless of whether plantings were made on river bottom lands.

Management recommendations: 1) Construct a fence around the upper end of the project land so that human use such as boat launching is prevented, and all use by livestock is eliminated. 2) If concrete Unifloats installed in other sites of the Lower Snake River Project are used by Canada geese for nesting, one of the six by 20 foot structures should be installed about halfway between the existing island and the large bend in the river. 3) All channelization or removal of trees and shrubs in the Tucannon Valley upstream from the project boundary should be strongly discouraged. 4) The cliffs and steep slopes bordering this wildlife habitat as well as those bordering the reservoir for five miles upstream and five miles downstream from the mouth of the Tucannon should be guarded against destruction or disturbance since they provide valuable nesting sites for hawks and falcons. 5) Establish a hand carried irrigation system as in scheme four A on the eastern bank's flat portion of the point. A power line, from the opposite bank should supply the electrical energy. This system could be fully automated.

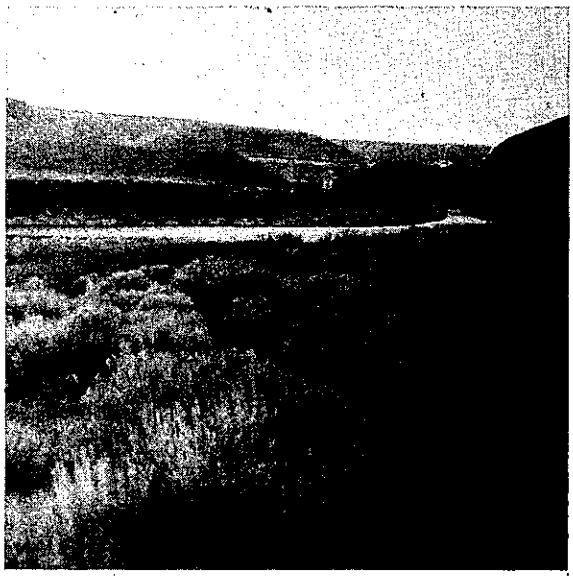
## WILDLIFE HABITAT 14-N

This habitat includes the entire area from the upper end of the project boundary in Alkali Flat Creek to the railroad bridge about 1.5 miles downstream.

The bottom land soils are alluvial and vary considerably in depth. Occasionally there are exposures of stony soils. Most of the moisture available to plants on these bottom lands is provided by subirrigation.

Near the lower end of this habitat and close to the water there is a cattail-sedge plant community. Further from the water and five to 10 feet higher there are extensive areas characterized by the rabbitbrush-cheatgrass plant community. Near the upper end of this habitat there is a tilled field (new crop in spring, 1974), bordering the east side of the creek. There are two fields on the west bank. Most of the upper end bottom land supports a sparse stand of rabbitbrush-bluegrass-cheatgrass with scattered black locust and willows.

Pheasants, chukars, Hungarian partridges, mallards, and numerous song birds (including killdeer, cliff swallows, Bullock oriole, red-winged blackbirds, meadowlarks, and sparrow hawks which are on the National Audubon Society's Blue List) occupy this habitat. Also, the yellow-bellied marmot, muskrats, and mink occur in this habitat, as well as rattlesnakes and gopher snakes. Seasonally, white-tailed deer come into the area.



Excellent stream bank vegetation flanked by rabbitbrush at lower Alkali Flat Creek wildlife habitat. Photo taken April 1974.

On the slope extending upward and westward from the project boundary there is an extensive range of bluebunch wheatgrass-bluegrass-cheatgrass. The lower slope of this off-project range has excellent and extensive stands of rabbitbrush. Grazing here has evidently been much lighter than on the slope on the opposite side of the project land. Cattle there have over utilized the range and contributed to erosion.

MANAGEMENT, WILDLIFE HABITAT 14-N, ALKALI FLAT CREEK

Management aim: Improve habitat conditions for upland game, for nongame animals, and for wintering waterfowl.

Discussion: There is subirrigated soil suitable for development of food patches in the upper end of the project. On both slopes outside of the project there are extensive ranges where pheasants, chukars, and Hungarian partridges reside. Some of their patterns of movement extend on project land where there is a good opportunity for habitat development. Shortage of good protective cover for wildlife on the area is evident and may be limiting wildlife population numbers. Also, there is probably a shortage of food during winter for most game species that occur in the area. Good wildlife cover on the large slope bordering the west side of the area indicates that larger populations of upland game could live there if more food were available on the project land. Also, nongame species and wintering mallards would benefit from any new habitat provided for upland game.

Management recommendations: 1) Continue using the field bordering the east side of the creek for growing alfalfa, harvesting the crop by following present procedures. 2) Plant spring wheat in the two fields on the west bank of the creek. After three years, one field at a time should be rotated with grasses. 3) Plant shrubs in closely interspersed clumps on bottom lands downstream to the cattail-sedge, tall grass, and rabbitbrush-cheatgrass plant communities using the following suggested species: Black

hawthorne, Nanking cherry, wild rose, blueleafed honeysuckle, choke-cherry, bladder senna, and snowberry. Close to the stream plant willow and red-osier dogwood, and at the outside edges of the area plant Russian olive. 4) The livestock easement should remain at the very western edge of the wildlife area. Provide fencing on the project boundary along the western edge of the Alkali Flat Creek area.

## WILDLIFE HABITAT 15-N

This is a small habitat east of Riparia Recreation Area and the mouth of Alkali Flat Creek. It occupies all project land between Lower Monumental Reservoir and the highway to the north, and the agricultural land to the east which is presently in alfalfa. A small pond near the center of the habitat has an inlet from the reservoir, a channel extending westward, and several small connecting lagoons.

Black locust and a dense stand of large smooth sumac occur on the western part of the habitat, and a few willows are growing near the pond. Vegetation grows profusely and densely on the well watered alluvial soils that vary from six inches to six feet in depth. Among the more prominent plants on the area are rabbitbrush, cheatgrass, bluegrass, mustard, cattail, sedge, rushgrass, bullrush, goldenrod, clover, willow and black locust.

Animals known to use this area either seasonally or annually include: Common loon, diving and river ducks, Canada geese, rails, coots; several species of shore birds (killdeer, pectoral sandpiper, western sandpiper, Wilson snipe); pheasants, California quail, great blue heron, red-winged blackbirds, sparrow hawk (threatened species), osprey, and a variety of songbirds. The red-tailed hawk nests in the locust trees and sometimes off the project boundary in the nearby cliffs. Several mammals including raccoon, mink, muskrat, and weasel also occur in this habitat.

The pond affords an excellent site for a floating goose nesting structure, and the alfalfa fields at the east edge of the habitat provide excellent grazing for waterfowl broods. There is a railroad bridge, a railroad depot, and a highway close to the area on the north. The recreation area immediately to the west would provide limited grazing for both resident and migrant geese.

MANAGEMENT, WILDLIFE HABITAT 15-N, RIPARIA

Management aim: Safeguard the habitat from major disturbances, improve nesting potential for Canada geese, and upgrade and increase project land so that the total size of the wildlife habitat is adequate for practical development.

Discussion: Scientists have long recognized that the best soils produce the best crops, animal and vegetable, in both quantity and quality. This principle is emphasized in the introduction and is of paramount importance in planning development of this wildlife habitat. Although soil quality and depth on the area are good, there is a conspicuous absence of food for either waterfowl, upland game, or nongame animals. Nor is there an opportunity for developing an adequately sized food patch on the area without sacrificing valuable cover.

Immediately east of the area, however, there is a tract of approximately 100 acres of nearly level alluvial soil of good depth and quality that is producing alfalfa. This is privately owned land that is extremely valuable for producing high quality food for wild-

life, vastly increasing the potential of the adjoining wildlife area. Wintering and breeding populations of geese, ducks, upland game birds, and some nongame animals would gain significantly from foods that could be produced on this land. The important consideration here is that sufficient high quality food would be close enough to good cover to assure high survival of wildlife.

Management recommendations: 1) Install a concrete Unifloat, six feet wide by 20 feet long, near the center of the pond. 2) Buy or lease the private crop land east and north of the present project boundary, extending for about 100 acres in the area. To be consistent with the overall program being recommended to higher authority and to Congress for fish and wildlife compensation, the acquisition proposed here to extend the project boundary would have to be on a willing-seller basis. 3) Establish habitat development in the area, about 5,200 feet by 800 feet, generally following the plan as in scheme two. Electricity is available for the irrigation pump power supply.

## WILDLIFE HABITAT 21-S

Dry Gulch, New York Gulch, Phalen Gulch, and Hanger Gulch are the main features of this four mile long habitat area. Except for New York Gulch, the inlets are well protected from the prevailing southwest winds, and Dry Gulch affords an excellent opportunity for installation of a floating goose nesting structure. Relatively steep slopes about Hanger Gulch have shallow soils, whereas there is a flat area of several acres with medium to deep, dark, and loamy textured soil at the south end of Dry Gulch.

Vegetation on the slopes is low to moderate in density and dominated by cheatgrass and bluebunch-wheatgrass. Chokecherry, sumac, cottonwood, and poplar occur on part of the west slope of Dry Gulch, and a clump of old mulberry trees is growing near the southern tip of the bay. A large variety of plants is presently growing on the flat loamy land at the head of the bay, including orchard grass, cheatgrass, wild barley, Kentucky bluegrass, mustard, bull thistle, and mullein.

The area is presently used by livestock for pasture and access to water.

## MANAGEMENT, WILDLIFE HABITAT 21-S

Management aim: To provide opportunities for goose reproduction.

Discussion: Restricted space for establishing a food patch, no land access to the area for farm machinery, and shallow soil on

steep slopes all limit the growth of food and cover plantings on this area.

The section from New York Bar downstream to about Hanger Gulch has long been recognized as one of the most important nesting and concentration areas for Canada geese in the Lower Snake River Project. Probably all of the nesting sites in this stretch of the canyon, including New York Island, are claimed by territorial pairs of geese leaving no additional sites for nesting. Actually, lack of nesting sites probably is limiting to goose production, although there will be good feeding areas for both broods and adult geese at Ridpath Landing and New York Bar. Providing additional nesting opportunities would tend to disperse rather than concentrate nesting thus reducing potential mortality.

Management recommendations: 1) Install a concrete Unifloat, six feet wide by 20 feet long, about three-fourths of the distance from the mouth to the end of Dry Gulch. 2) After food patches have been established at Ridpath Landing and New York Bar, and if concrete Unifloats installed in other sites of the Lower Snake River Project demonstrate use by Canada geese for nesting, install an additional Unifloat in each of the following bays; Hanger Gulch, New York Gulch, and Phelan Gulch which is about midway between Dry Gulch and New York Gulch. 3) Establish a timer controlled solid set irrigation system following scheme four A southwest of New York Gulch. Local electric power for the irrigation pump is available. 4) A hedgerow as in scheme five should follow the project

boundary fence which runs adjacent to the scheme four A planting. 5) Twenty-five foot corridors should be constructed for the livestock watering easements. 6) A small alfalfa field (scheme 1 modified) would be placed in Dry Gulch, watered with portable pump and a solid set irrigation sprinkler system. 6) The project boundary along the entire habitat area will need to be fenced.

## WILDLIFE HABITAT 22-N

From approximately mile 76, Ridpath Landing extends upstream on the north side of the reservoir for approximately 1.5 miles. Ridpath Landing is considered one of the most valuable wildlife areas on project land of the entire Lower Snake River Project. Practically all area land is level to very gently rolling and less than 10 feet above the operating water level. Soils vary in depth, being shallow and gravelly at the northern edge but gradually deepening to a depth of at least three feet and becoming a sandy loam toward the shore edge. Much of the soil at the lowest level, particularly along the shoreline, is subirrigated. Along the shore there are a half dozen small bay-like indentations with relatively shallow water. Browns Gulch is included.

Vegetation is moderate to low in density and entirely herbaceous. Orchard grass and cheatgrass are dominant on most of the area, but clumps of alfalfa persist from former plantings on nearly one-third of the area. Cattail and dock grow profusely around the bay-like indentations where subirrigation appears ideal for growth of these plants. Sunflowers and common thistle are scattered over the drier parts of the area.

While studying this area on 22 May 1974 two white-tailed deer, 13 adult Canada geese, several coots, a pair of mallards, a marsh hawk incubating six eggs, several pairs of red-winged blackbirds, at least six ring-billed gulls, five meadowlarks, a pair of horned larks, numerous white-crowned song and vester sparrows, and several

Marsh hawk nest in dense herbaceous cover on Ridpath Landing, May 1974.

Orchard grass on Ridpath Landing heavily browsed by deer and Canada geese, May 1974.

hundred cliff swallows were sighted. Also, cottontail rabbit trails and droppings indicated that the area presently supported at least a population nucleus of these animals. Along the outer edge of the area, around the bay like indentations, and throughout the area containing alfalfa clumps a heavy accumulation of Canada goose droppings indicated heavy use of the area. Practically all of the alfalfa observed had been grazed by geese or browsed by deer. The caretaker stationed at Ridpath informed us that he had recently observed from 6 to 10 pairs of geese and up to eight white-tailed deer on the area at one time.

Height and density of vegetation on this area adds to its utility. Geese prefer nesting in cover that conceals their bodies during incubation but allows them to detect approaching enemies by lifting their heads above the vegetation. Also, young geese can move about freely while feeding with minimum exposure to their enemies. Deer can hide very effectively by lying in the tallest vegetation of the subirrigated parts of the area. A relatively wide selection of food plants is available throughout most of the year.

There are several concrete floors and foundation remnants of former buildings along the north edge of the area, and an overgrown unimproved road extends onto the area. No indications of recent grazing by domestic stock was observed. Extending northward and beyond project boundary there are two large canyons of range land used by white-tailed and mule deer, pheasants, and chukars. A fenced railroad extends through the area.

## MANAGEMENT, WILDLIFE HABITAT 22-N RIDPATH LANDING

Management aim: To produce plant food for breeding and wintering Canada geese, to improve quality and quantity of food for deer, and to provide food and supplementary cover for pheasants.

Scattered clumps of alfalfa, persisting on the area since previous ownership, have been severely browsed by geese and deer attesting to high use by these two important game species. Despite rigorous and competitive browsing, the stems of alfalfa are husky and the plants appear luxuriant. These indications of survival and good growth without artificial irrigation for at least several years reflect good soil conditions and suggest that alfalfa is a practical food plant for this area. Since geese are known to nest on and near this area, goose production should be significantly improved by providing more alfalfa for rearing goslings and for wintering geese.

Although both mule and white-tailed deer occur in the two large canyons of range land extending beyond project boundary, forage during critically dry seasons and severe winter periods is in short supply. Alfalfa on the area would thus improve both quantity and quality of food that presently appears to be limiting to deer populations on and in the vicinity of this area.

A few ring-necked pheasants have been observed in the canyons extending beyond project boundary, but they rarely occur on the Ridpath project area. Their absence from the area is probably attributable to paucity of good nesting cover and particularly to

sufficient winter food within cruising range of protective cover. These two deficiencies can be overcome by planting a patch of wheat or barley adjacent to the alfalfa, and by planting shrubs along the fence along the north edge of the area.

Management recommendations: 1) Install a timer controlled, solid set irrigation system similar to scheme five along the fence south of the railroad tracks. 2) Provide a small alfalfa and barley field (scheme 1 modified) between the fence row planting and the shoreline. 3) Provide boundary fencing around Browns Gulch.

Nearby power lines are an available power supply.

## WILDLIFE HABITAT 23

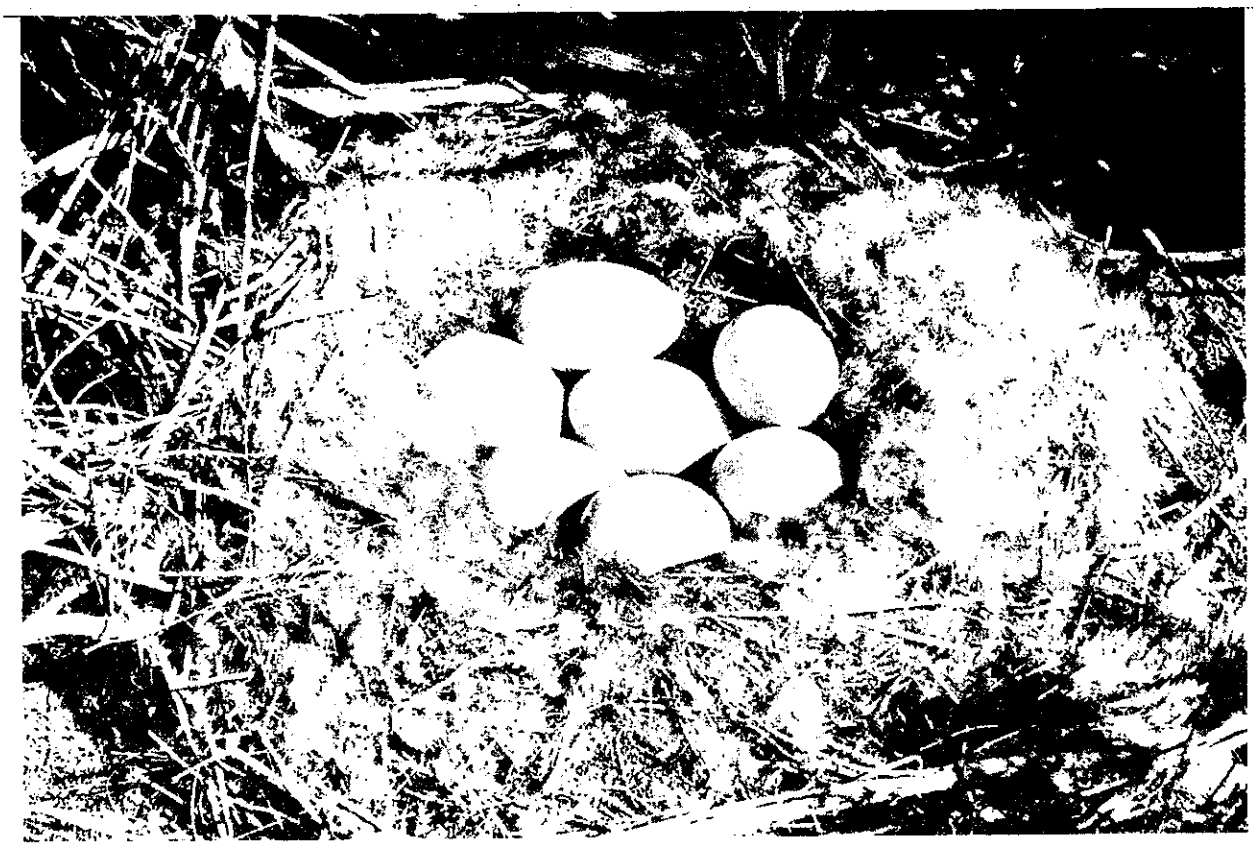
New York Island, about four miles downstream from Central Ferry between mile 78 and 79, is approximately 300 yards wide by 1200 yards long and about 48 acres in size. The island slopes gently from a near central ridge, approximately 12 to 15 feet above the operating pool level, toward the low east edge and more abruptly toward a gravel scarp on the west edge. Surface soils of sandy to silty loam overlay sandy layers of variable texture. Erosion at the western edge of the island reveals some gravel in the soil profiles. A flat area about midway along the east edge of the island is intermittently irrigated by fluctuations in the reservoir water level.

Vegetation is generally low to moderate in density, with a few relatively small areas with high density. Cheatgrass and peppergrass dominate on much of the area with mustard approaching dominance in some areas. Also, vetch, rabbitbrush, clover, yarrow, and canyon heather are scattered over the area. Cattail, and a clump of planted willow and a tall as yet unidentified grass (introduced) dominate about a quarter acre of land on the low flat area along the east edge of the island. At least one ponderosa pine about three feet in height is surviving from several planted on the island.

This is a very popular goose nesting island; during the last four years, 1971-1974, from 20 to 28 nests have been located and studied annually on this island. Horned larks also nest on the island, and red-winged blackbirds nest in the cattails at the eastern edge. On

June 6, 1974 a western grebe was seen close to the western edge and a gopher snake was seen on the northwest part of the island.

Vegetation reflects severe disturbance. Small parallel furrows over much of the island suggest that an attempt had been made to make plantings prior to its isolation. As a consequence, cheatgrass, Jim Hill mustard, and peppergrass are dominant seral species that indicate a disturbed area.



High nesting density of Canada geese on islands suggests that artificial nesting structures placed near water level would be more successful than those placed high above ground.

There are 11 artificial goose nesting structures on the island. Six are split 50-gallon oil drums mounted on three 6-foot metal legs (see Gibson and Buss, 1972, for details of construction), and five are bales of straw stacked so a space is left for nest construction near the center and top of the stack. There is no record of geese using these structures for nesting purposes. An all steel navigation tower about 20 feet in height has been constructed on the northwest part of the island.

## MANAGEMENT, WILDLIFE HABITAT 23, NEW YORK ISLAND

Management aim: To guard against soil disturbance so that vegetation on the island can reach a natural climax community without further setbacks to seral stages in succession, to remove all goose nesting structures including split oil drums and bales of straw now on the island, and to refrain from planting of any kind, particularly trees and shrubs.

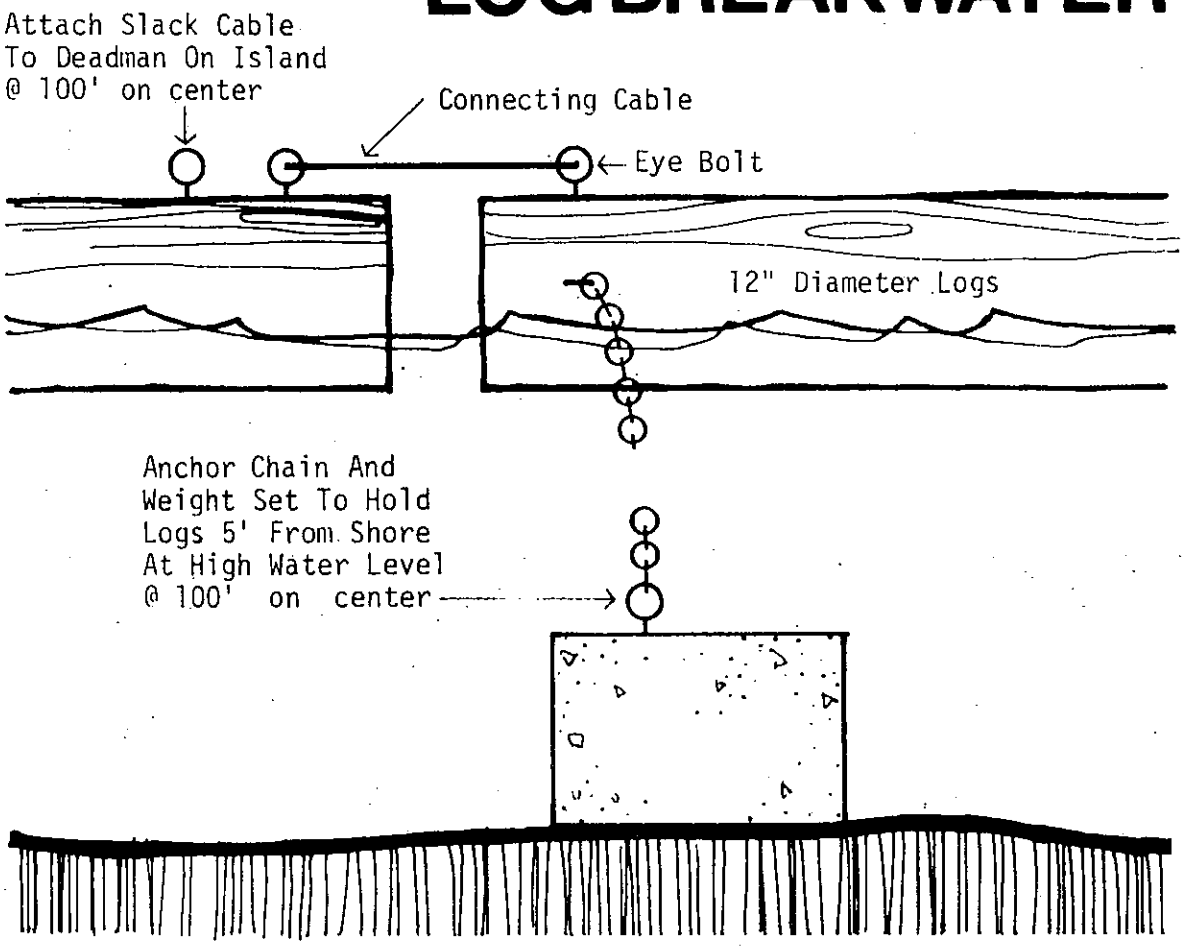
Discussion: Numerous goose nesting studies show that where geese nest on islands they prefer vegetation that conceals their bodies during incubation but allows them to detect approaching enemies by lifting their heads above the vegetation. Rank, dense vegetation is restrictive. At one time when 91-acre Log Cabin Island (present site of Lower Granite Dam) had sparse vegetation

numerous geese nested on the island, but when livestock was taken off this island and plant growth became tall and dense only one nest was found there - it was located on a sandy ridge which was the only remaining site on the island with low sparse vegetation. At present the vegetation on New York Island must be nearly optimal or there would be fewer geese nesting there.

There is little use to try increasing nesting opportunities for geese unless adequate rearing areas for young geese are within cruising distance of broods. Juvenile mortality caused by long travel movements tends to offset gains in increased number of goslings hatched. When adequate goose pastures or rearing areas are provided close to nesting areas, higher goose production is almost always achieved.

Management recommendations: 1) Remove all goose nesting structures including split oil drums and bales of straw now on the island, and refrain from planting of any trees, shrubs or herbs. 2) Establish an alfalfa field as near the island as possible for rearing young geese. The best appearing site is at the downstream end of New York Bar. 3) Establish and anchor a log boom, as illustrated on the next page, around the both ends and along the one side of the island as shown on map 4. This will reduce the wave action erosion which is now taking place.

# LOG BREAKWATER



## WILDLIFE HABITAT 24-S

New York Bar, roughly 210 acres and ranging from four to 35 feet above the operating pool level, is located on the south side of Little Goose Reservoir at mile 81. This area includes project land extending southward from the bar to the irrigation pipeline and livestock watering access at which point the project land is wider. The southern end of this area is almost opposite New York Island. The area slopes downstream from the highest part at the northern end. Soil at the surface is a sandy loam overlaying strata of gravel and sand.

Vegetation is low to moderate in density and dominated by cheatgrass, and bluebunch wheatgrass. Jim Hill mustard, bull thistle, goatsbeard, canyon heather, and fleabane are scattered irregularly over the area. Grazing is the principal disturbance factor to vegetation on this area.

Resident geese, particularly pairs with broods feed on this area, and wintering geese have long been known to concentrate here in large numbers. Deer, chukars, and Hungarian partridges occur on the area seasonally. Ground nesting small birds and small mammals (primarily rodents) on the area provide prey for raptors and other predators.

The nearest road to this area leads to New York Gulch via private land about 1.5 miles downstream.

## MANAGEMENT, WILDLIFE HABITAT 24-S, NEW YORK BAR

Management aim: Provide food for waterfowl, and food and cover for upland game and nongame species.

Discussion: New York Island, in close proximity to this habitat, is probably the best nesting area for Canada geese within the entire Lower Snake River Project. Young geese hatched from nests on New York Island, however, do not have adequate rearing areas close enough for their use. Optimal goose production can only be accomplished by having nesting sites within brood cruising range of good quality feeding areas. Such feeding areas must provide insect foods and either new growth alfalfa or short green grass for grazing by both goslings and adults. New growth alfalfa is much preferred to older and taller growths. Hence where alfalfa is grown for geese, harvesting should be regulated so that young new growth is available at the peak of the hatching period for geese. Where a large number of broods is produced, as on New York Island, a relatively large brood rearing area is essential for assurance of high gosling survival.

Fortunately there is an opportunity to provide an excellent brood rearing area acceptably close to New York Island. There are at least 100 acres of tillable land on New York Bar where there is alluvial sandy loam soil of good depth for crop production. Agricultural crops were raised on this land about a decade before impoundment of Little Goose Reservoir. Since then this land has lain idle and has reverted primarily to grasses. Livestock graze on the area throughout the year.

Management recommendations: 1) Establish an alfalfa field 1320 feet by 400 feet utilizing the scheme one irrigation system. The location of the field should be approximately one-half mile southwest of New York Bar and as close to the water as possible. 2) A second area 2600 feet by 800 feet on New York Bar should be established following scheme one. 3) Along the proposed boundary fence around the wildlife area, a hedgerow following scheme five should be planted. Power is available from a local line. Livestock corridors 25 feet wide should be constructed where easements exist for watering.

## WILDLIFE HABITAT 25-N

Swift Bar, a 249 acre area, is located on the north side of Little Goose Reservoir between mile 94 and 96. The entire area tends to be flat with occasional undulations, and is from 10 to 12 feet above the operating pool level. The alluvial deposits comprising this area tend to be gravelly and sandy. Two relatively small bays extend about one-fourth of the way in from each end of the bar. Both bays and the shoreline of the bar are subirrigated.

The herbaceous vegetation of this area tends to be moderate to high in density and is dominated by cheatgrass, alfalfa, and vetch. Prickly lettuce, Jim Hill mustard, dock, peppergrass, and quackgrass also occur sporadically on the area. The occurrence of alfalfa indicated that cultivation has been attempted in the past and has resulted in much disturbance to vegetation. Nearly all the plants on the area represent seral stages of succession and reflect soil disturbance.

A large area of irrigated pasture land immediately north of the railroad tracks provides year around grazing for geese. Pheasants, chukars, Hungarian partridges and deer live on the canyon slope beyond the project boundary and on a cattle ranch north of Swift Bar.

A fenced railroad right-of-way extends across the Swift Bar area. An unimproved road leads to the cattle ranch immediately north of the railroad tracks but does not go over or under the tracks to extend into the southern part of the area.

## MANAGEMENT, WILDLIFE HABITAT 25-N, SWIFT BAR

Management aim: Provide food for waterfowl, and provide food and cover for upland game and nongame animals.

Discussion: Deep alluvial soil and relatively level land will support good food and cover crops for wildlife on this area. Canada geese are present during the winter and the breeding season, ducks winter in this locality, and upland game animals use the slopes and canyons immediately beyond the project boundary. The potential for crop growth and the occurrence of waterfowl and upland game indicate an ideal location and situation for improvement of life requisites for these animals. The area is large enough to allow practical and worthwhile development.

At present the project land on the north side of the railroad right-of-way is being used by a local rancher for growing alfalfa under a share-crop agreement which provides some wildlife value.

Management recommendations: 1) Following scheme two, establish an area 2600 feet by 400 feet between the two bays. A portable power unit will be needed to run the irrigation pump. 2) Plant the following kinds of shrubs to form a continuous line of cover parallel to the railroad right-of-way and immediately south of the southern fence on the area: Black hawthorn, wild rose, chokecherry, snowberry, and caragana. About the two bays, plant red-osier dogwood (close to the water's edge) and willow (close to the water's edge) with an outside border of black hawthorn. The hedgerow and shoreline plantings would not be irrigated except during establishment.

## WILDLIFE HABITAT 26-S

This area extends upstream 6.5 miles to Old Illia Park from and including the first major canyon above mile 95. It is considered to be of high value to wildlife because the 15 to 20 canyons beyond the project boundary contain shrub, tree, and herbaceous vegetation comprising excellent wildlife habitat. Beckwith Bar, between mile 98 and 99, is a 136 acre area included in this wildlife habitat. The bar is relatively flat and about 10 feet above the operating pool level. Soil consists mostly of sand and loam.

Vegetation density of the bar tends to be moderate with cheatgrass and sheep sorrel as dominates. Kentucky bluegrass, bluebunch wheatgrass, filaree, Jim Hill mustard, poison ivy, and wall barley are also common on the bar. Several groups of trees grow along its southern edge.

The 15 to 20 canyons that extend southward beyond the project boundary for variable distances contain a broad variety of trees, shrubs, and herbs. Some of the most important species are: Bluebunch wheatgrass, rattlesnake brome, ryegrass, lomatium, sytringa, chokecherry, serviceberry, ocean spray, clematis, golden currant, wild rose, blackberry, sagebrush, blue elderberry, willow, and silver maple.

Pheasants, chukars, Hungarian partridges, California quail, and both mule and white-tailed deer live in the canyons and occur seasonally on the bar. Many song birds and raptors live in the canyons.

Numerous mammalian species from coyotes to shrews and including fur bearers also live in the canyons. Both resident and wintering Canada geese feed and rest on the bar.

The entire area is relatively inaccessible with an unimproved road running along the south edge of the bar. Two small buildings remain at the west end of the bar.

MANAGEMENT, WILDLIFE HABITAT 26-S, BECKWITH BAR

Management aim: Protect the area in its present status with supplemental habitat development at one location near the project shoreline.

Discussion: Upland game animals including deer, and nongame animals that use this 6.5 mile strip of land also utilize the 15 to 20 canyons and the slopes beyond the project boundary to meet their life requirements. By being able to utilize both the project land and the important off-project lands, a rather broad spectrum of habitat needs are fulfilled, and a relatively diverse fauna finds suitable habitat niches. Considering individual species, this habitat (project and non-project land) provides alternate combinations of food and cover to assure good survival under various weather and hunting conditions. Thus this is obviously very valuable land for wildlife use.

Management recommendations: 1) An area between the two bays 2400 feet by 400 feet as in scheme two should be established. 2) A local power line is available for the pump. Twenty-five foot wide corridors should be constructed for livestock usage, and the project boundary would be fenced.

## WILDLIFE HABITAT 27-N

The 145 acre Schultz Bar is located on the north side of Little Goose Reservoir at mile 100. The entire area tends to be level with minor undulations. The alluvial deposits comprising this area tend to be sandy to gravelly. Like Swift Bar, Shultz Bar is from 10 to 12 feet above the operating pool level and slopes gently toward shoreline which is subirrigated.

The herbaceous vegetation tends to be moderate in density becoming highly dense in a few locations. Cheatgrass dominates most of the area, but there are also sporadic scattered stands of Jim Hill mustard, dock, vetch, tarweed, sunflower, quackgrass, ryegrass, peppergrass, and alfalfa. Presence of alfalfa indicated that cultivation occurred in the past and has caused much disturbance to vegetation. Many of the plants represent seral stage vegetation reflecting soil disturbance.

Pheasants, chukars, Hungarian partridges and deer live on the canyon slopes beyond the project boundary. At present these animals, as well as Canada geese, are only seasonal visitors to Schultz Bar. Additionally, there are several species of ground nesting song birds and a few species of small mammals residing on the area. These small animals provide food for raptors and other predators.

A railroad track extends through and near the center of the area. An unimproved road that appears to be used very little extends downslope to the north edge of the area and then runs eastward close to the project boundary.

MANAGEMENT, WILDLIFE HABITAT 27-N, SCHULTZ BAR

Management aim: Provide food for waterfowl and provide food and cover for upland game and nongame animals.

Discussion: This area has many of the characteristics of Swift Bar. Deep alluvial soil and relatively level land, plus the occurrence of geese, wintering mallards, and upland game (mostly pheasants and chukars) in the project vicinity make this an appropriate site for development because there is a conspicuous absence of food for nearly all animals living in this vicinity. Although not as large as Swift Bar, Schultz Bar is large enough to allow practical enhancement.

Management recommendations: 1) Establish an area 3900 feet by 400 feet north of the railroad tracks as in scheme three. A portable power unit would have to be used. 2) Establish a continuous hedge near the south edge of the habitat area by planting wild rose, snowberry, chokecherry, Nanking cherry and bladder senna. 3) Establish a second continuous hedge immediately south of the fence on the south side of the railroad right-of-way by planting caragana and multiflora rose. 4) When these become well established, plant the vine clematis close to the hedge so a dense and entangled thicket is developed. 5) On the remainder of the southern section of land comprising the habitat, plant the following shrubs in clumps, selecting the lowest sites and edges of bays: Black hawthorne, wild rose, chokecherry, Nanking cherry, bladder senna, and blue-leafed honeysuckle. At the edges of the bays plant willow and red-osier dogwood. No irrigation would be done for the hedge row and shoreline plantings, after once established, as the existing sub-irrigation should suffice. The habitat area would be fenced on the project boundary.

## WILDLIFE HABITAT 31-S

This 22 mile strip of project land is continuous between Lower Granite Dam and Alpowa Creek on the south side of Lower Granite Reservoir.

Vegetation tends to be moderate in density on most of the project land. High density vegetation occurs in a few localized sites. Clegg (1973) lists cheatgrass and ripgut as having the highest abundance rating of 171 plant species found on the south side of the Snake River, Lower Granite Reservoir area. Clegg (1973) lists yarrow, Jim Hill mustard, wall barley, filaree, bluegrass, Canada bluegrass, Kentucky bluegrass, bulbous bluegrass, bittersweet, box elder, golden aster, and sand bur as second in abundance in the same area.

There will be very few if any sites on this 22 mile strip of project land wide and level enough to use for cultivation of wildlife food and cover when the reservoir reaches normal operating pool level. There are many canyons beyond the project boundary, however, with good to excellent vegetation that could continue to support a broad variety of wild animals.

Except in the vicinity of the dam, there are no roads on the project land above the pool level, but there are unimproved private roads on some of the high slopes and in some high canyons beyond the project boundary.

## MANAGEMENT, WILDLIFE HABITAT 31-S

Management aim: Protect and maintain project land without attempts at special habitat development.

Discussion: The shore on the south side of Lower Granite project offers the best opportunity for protection of wildlife values. It would be desireable to protect lands inside of the project boundary from overgrazing use as an alternative to development of habitat on the north side of the reservoir. There much of the north bank has been intensely disturbed by relocation of a road and railroad. Practically all riparian vegetation has been eliminated, extensive riprapping replaced much wildlife habitat, and earthwork activities have left unvegetated slopes. Although some seeding and restorative measures will be done on certain of the landscape scar areas, there are reasons to expect that successful re-establishment of any extensive habitat areas could not be achieved.

In contrast, there has been relatively little damage to wildlife habitat on the south side of the reservoir. Many slopes and canyons still have good or even excellent vegetation for supporting wildlife of considerable diversity. Money invested here in fencing for preservation and maintenance of habitat will yield vastly more dividends than expenditures for development on the north side.

The project master plan shows all of the project lands classified for wildlife use from Offield Canyon to Alpowa Creek, except for two small areas: the natural area at Granite Point and the low density recreation boat access area at Knoxway Canyon.

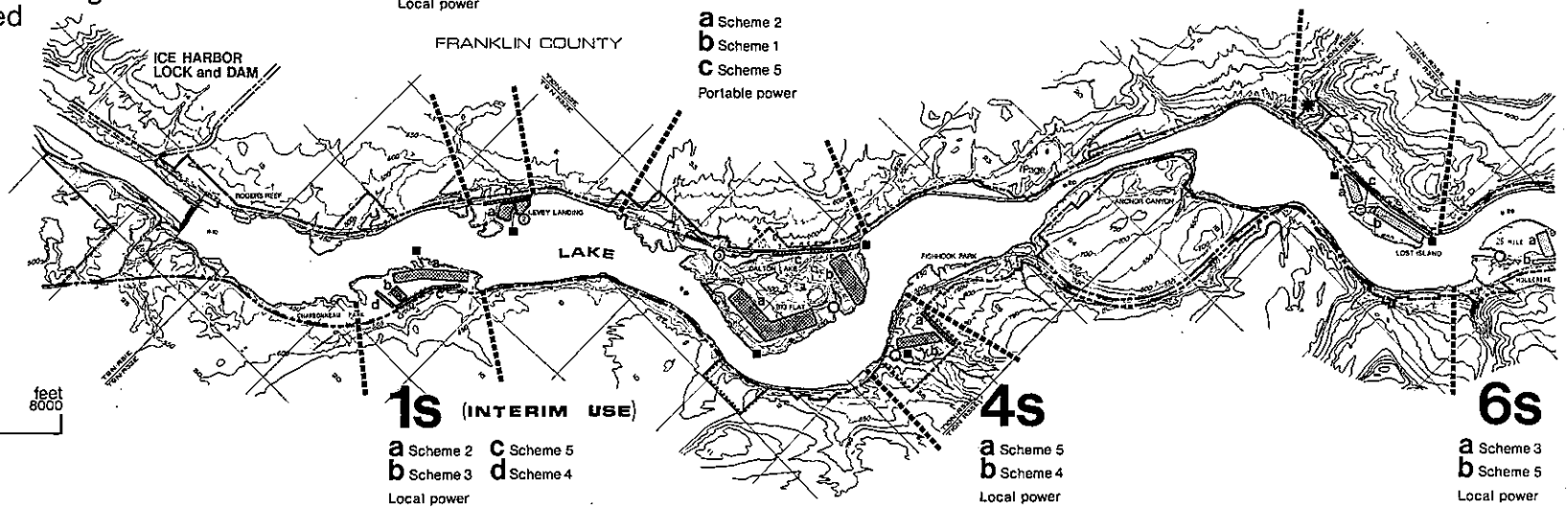
Management recommendations: 1) Protect and maintain all project land upstream from Lower Granite Dam to Alpowa Creek along the south side of Lower Granite Reservoir.

Even if success is attained in following these recommendations, this will only partially compensate for the great loss of wildlife habitat on the north bank of Lower Granite Reservoir by relocations in connection with impoundment.

The development plan indicates fencing in six places to prevent cattle encroachment. In the other places along the south shore the grazing will be limited by the steep cliffs and hillsides; however, some future additional fencing could be required depending on the actual management experience.

# Ice Harbor
# WILDLIFE MANAGEMENT

- Food and Cover Area
- Habitat Area
- Fencing
- Pump
- Goose Nesting Structure
- Livestock watering fenced corridor
- Livestock watering to be relocated




**2n** (INTERIM USE)
a Scheme 4
b Scheme 5
Local power

**3n**
a Scheme 2
b Scheme 1
c Scheme 5
Portable power

**5n**
a Scheme 2
b Scheme 1
c Scheme 5
Portable power

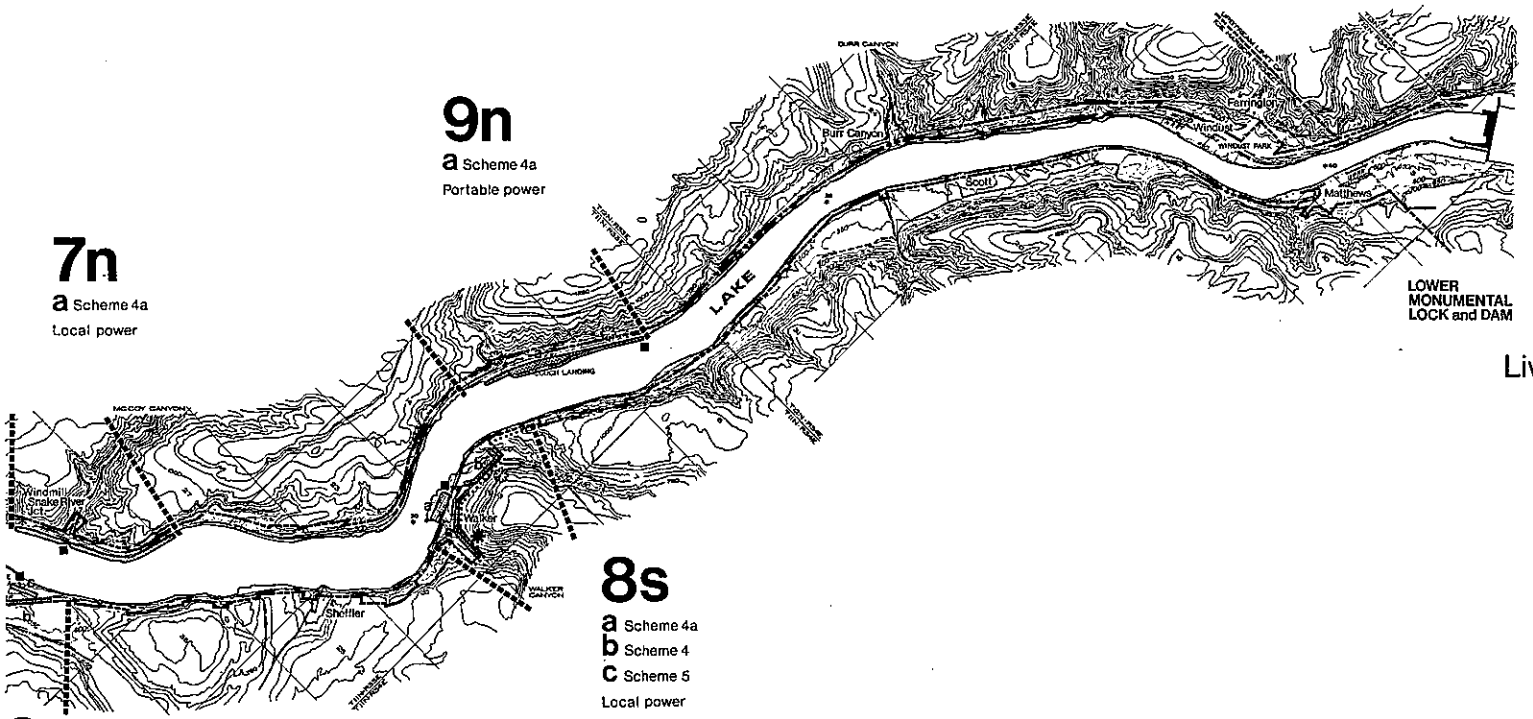
**1s** (INTERIM USE)
a Scheme 2 c Scheme 5
b Scheme 3 d Scheme 4
Local power

**4s**
a Scheme 5
b Scheme 4
Local power

**6s**
a Scheme 3
b Scheme 5
Local power

**LOWER SNAKE RIVER PROJECT** U.S. ARMY ENGINEER DISTRICT
Walla Walla, Washington

# Ice Harbor
# WILDLIFE MANAGEMENT




- Food and Cover Area
- Habitat Area
- Fencing
- Pump
- Goose Nesting Structure
- Livestock watering fenced corridor
- Livestock watering to be relocated

0 1 2 4 feet 8000

2

U.S. ARMY ENGINEER DISTRICT
Walla Walla, Washington

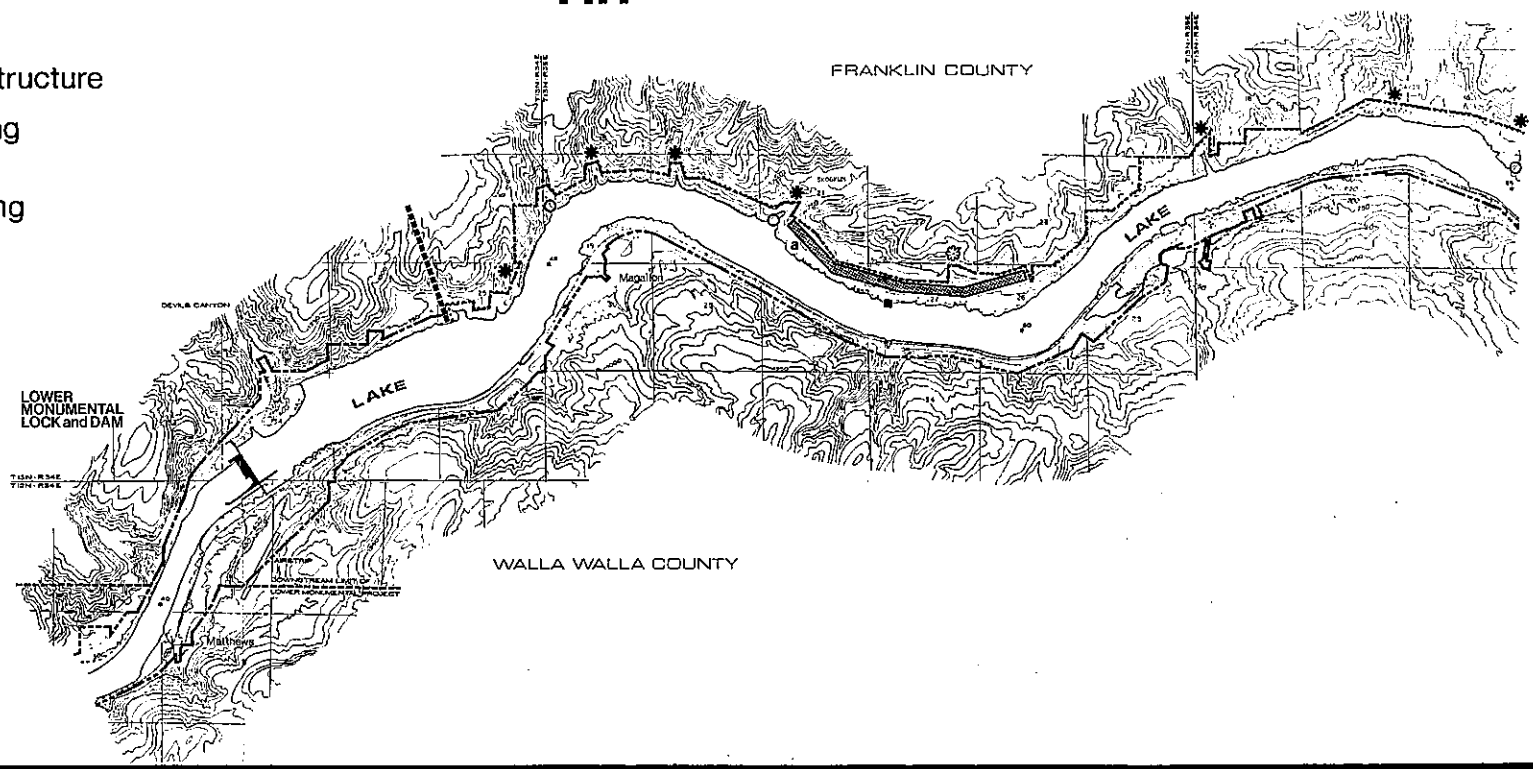
# LOWER SNAKE RIVER PROJECT

# Lower Monumental
# WILDLIFE MANAGEMENT

- Food and Cover Area
- Habitat Area
- Fencing
- Pump
- Goose Nesting Structure
- Livestock watering fenced corridor
- Livestock watering to be relocated

**11n**
**a** Scheme 2
Portable power

**11n**

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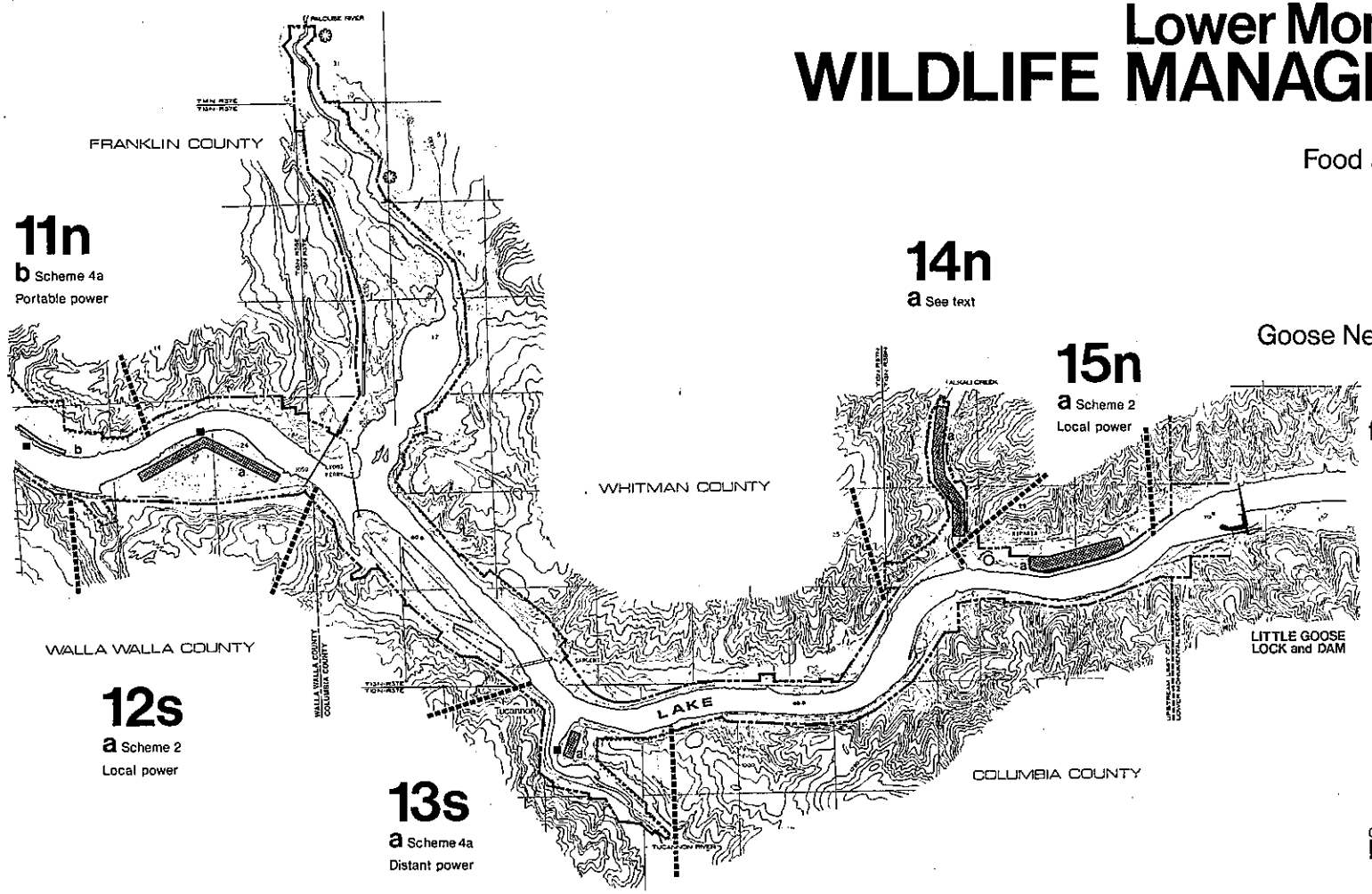
**LOWER SNAKE RIVER PROJECT** U.S. ARMY ENGINEER DISTRICT
Walla Walla, Washington

# Lower Monumental
# WILDLIFE MANAGEMENT




Food and Cover Area

Habitat Area

Fencing

Pump

Goose Nesting Structure

Livestock watering fenced corridor

Livestock watering to be relocated

0 1 2 4 feet 8000

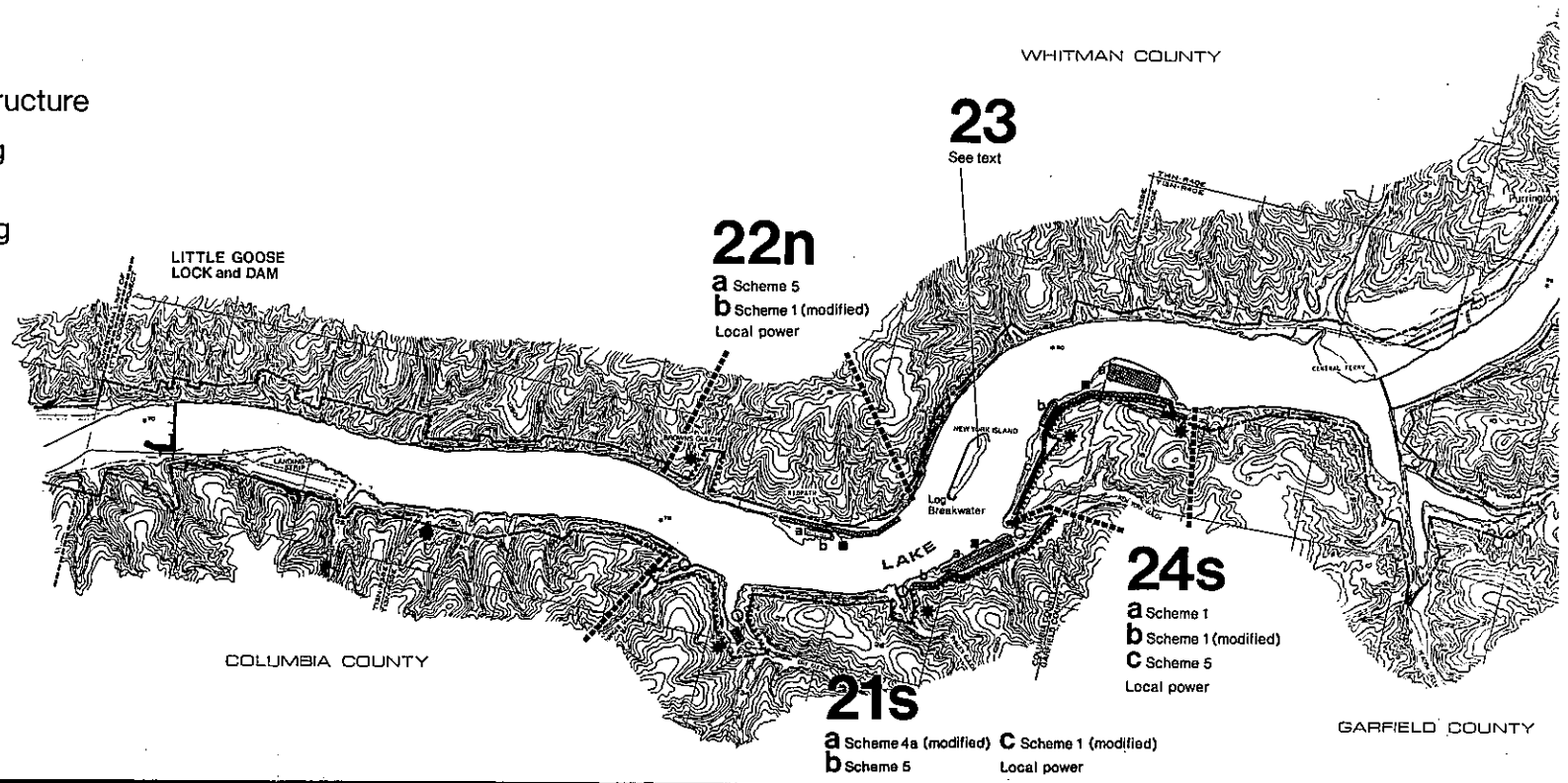
3

U.S. ARMY ENGINEER DISTRICT
Walla Walla, Washington

# LOWER SNAKE RIVER PROJECT

# Little Goose
# WILDLIFE MANAGEMENT

- Food and Cover Area
- Habitat Area
- Fencing
- Pump
- Goose Nesting Structure
- Livestock watering fenced corridor
- Livestock watering to be relocated

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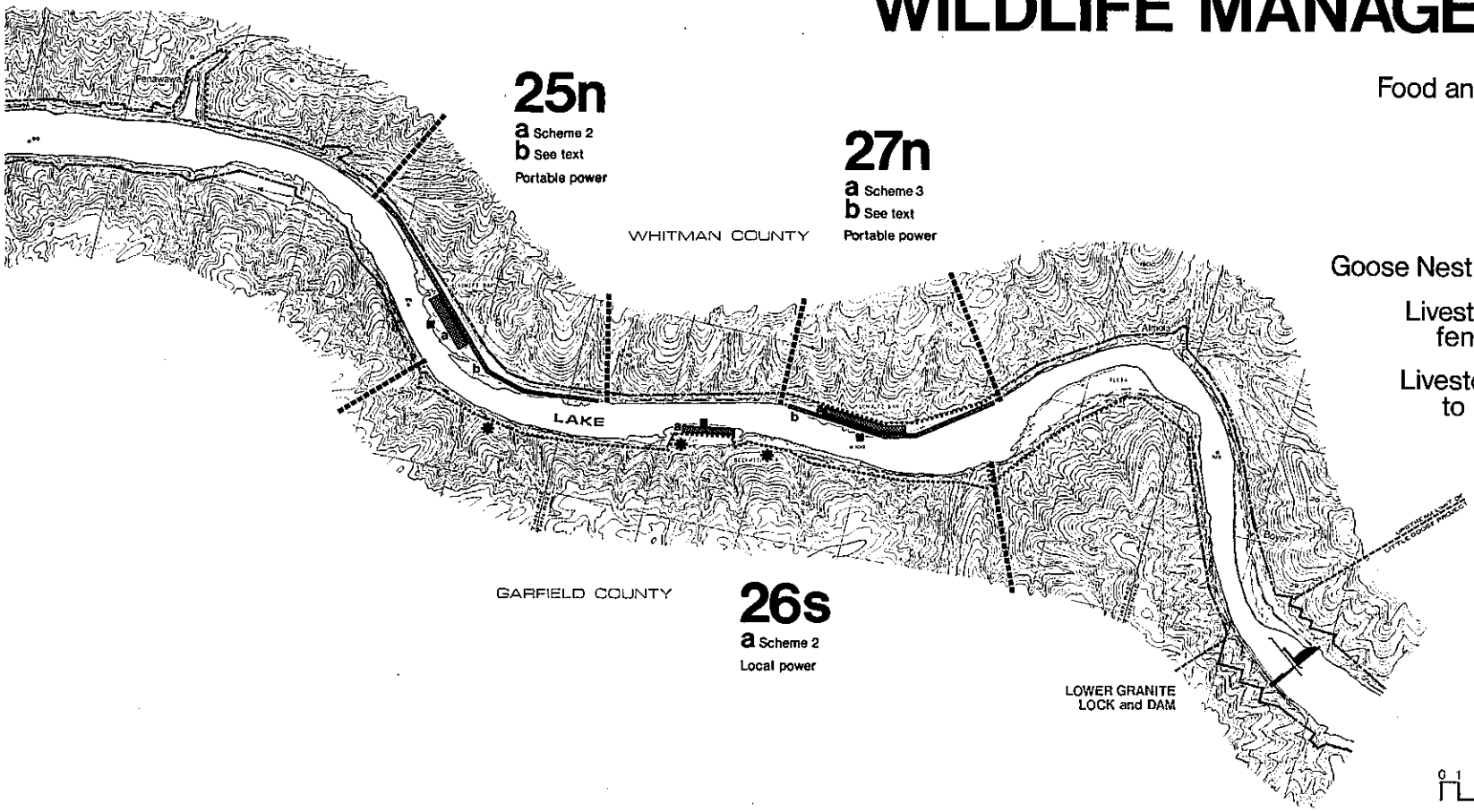
**LOWER SNAKE RIVER PROJECT** U.S. ARMY ENGINEER DISTRICT
Walla Walla, Washington

# Little Goose
# WILDLIFE MANAGEMENT

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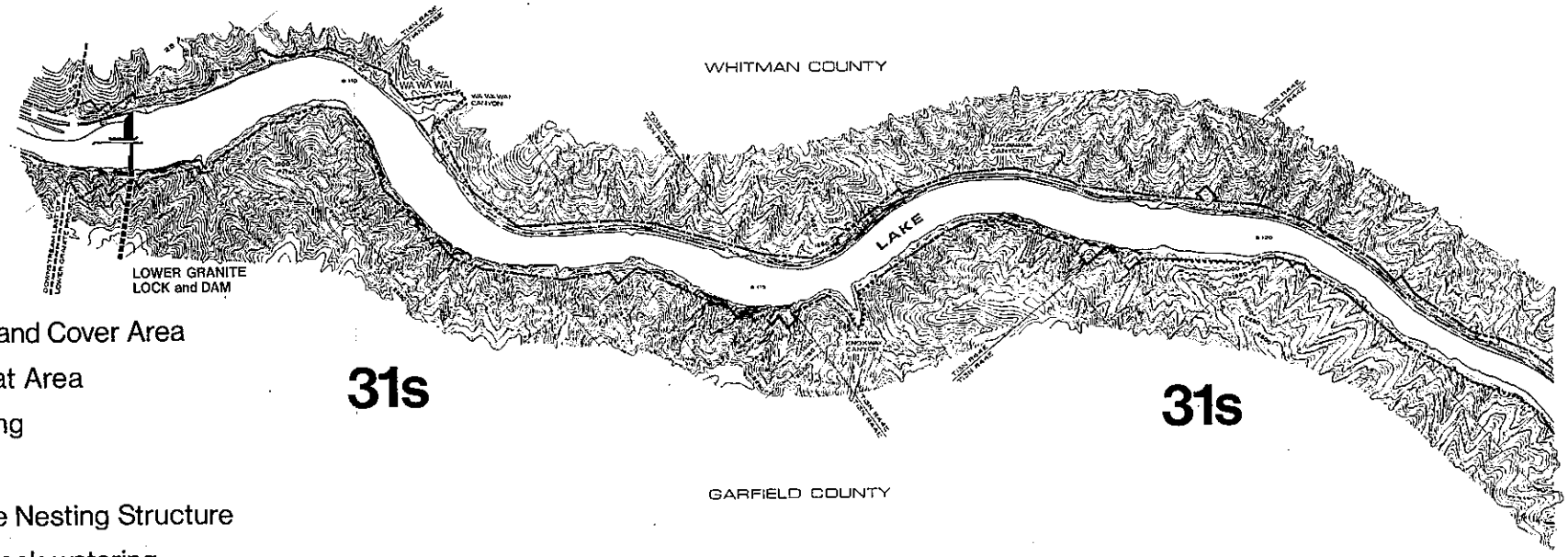
# LOWER SNAKE RIVER PROJECT

# Lower Granite
# WILDLIFE MANAGEMENT



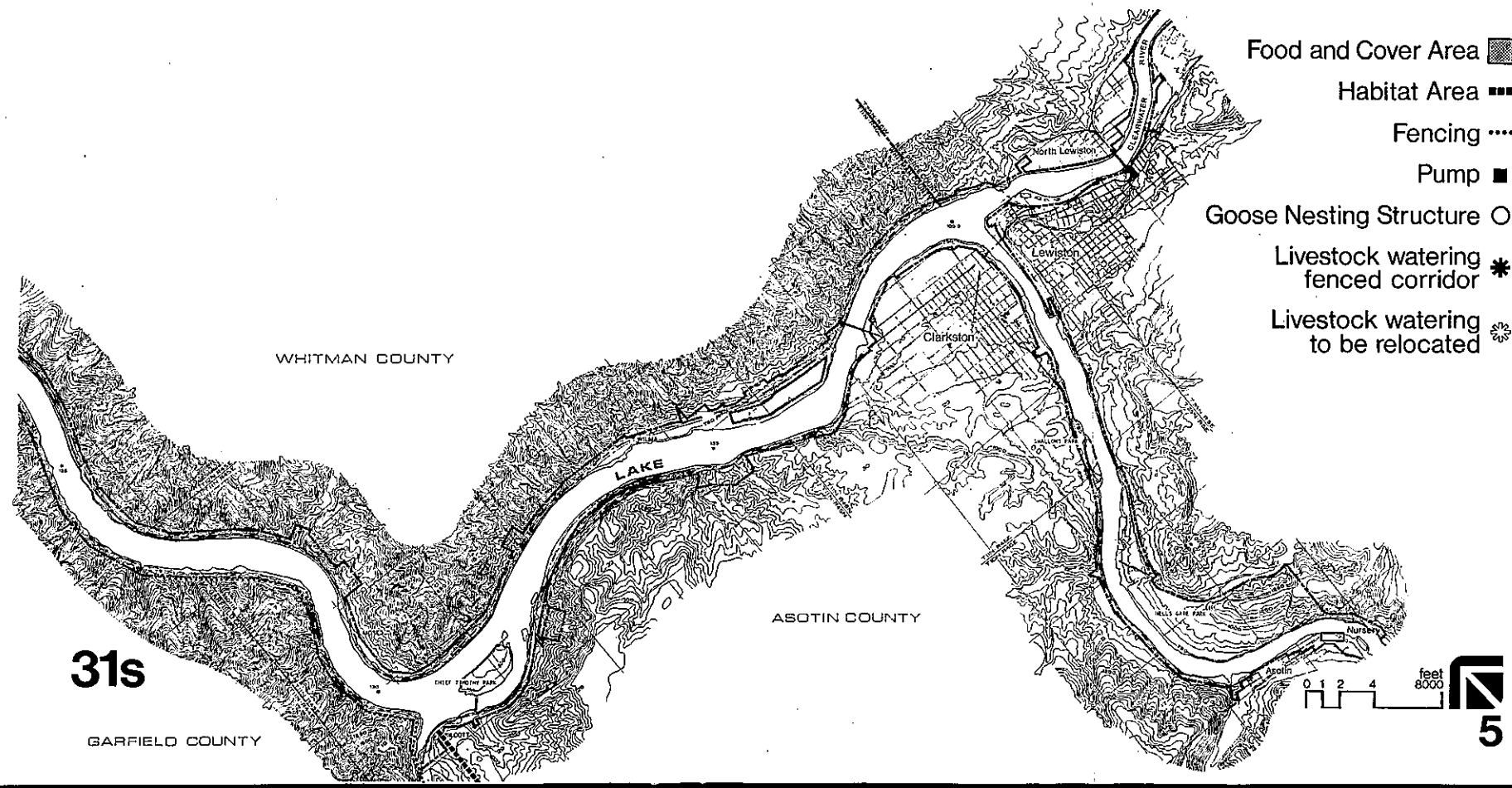

- Food and Cover Area
- Habitat Area
- Fencing
- Pump
- Goose Nesting Structure
- Livestock watering fenced corridor
- Livestock watering to be relocated

0 1 2 4 feet 8000

5

**LOWER SNAKE RIVER PROJECT** U.S. ARMY ENGINEER DISTRICT
Walla Walla, Washington

# Lower Granite
# WILDLIFE MANAGEMENT

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## LOWER SNAKE RIVER PROJECT